



NEDSS Compliant Surveillance Systems: CDC Updates on the NEDSS Base System and the NEDSS PAM Platform

2005 PHIN Conference, Atlanta GA

Session 3F

May 10, 2005

SAFER • HEALTHIER • PEOPLE™



Session Agenda

- NEDSS Introduction & Strategy - Scott Danos
- NEDSS Base System (NBS) Update
 - ◆ Deployment
 - ◆ Production Support
 - ◆ New Development
 - ◆ Foodborne and Diarrheal Disease PAM
- NEDSS PAM Platform Update
- NEDSS Q&A



NEDSS Base System Update

Jim Kauflin, NBS System Architect

SAFER • HEALTHIER • PEOPLE™



Key NEDSS Base System Messages

- Dedicated team of NBS experts has continued to support and extend NBS through multiple releases
 - ◆ Deployment – delivers NBS & ELR to new states and new NBS releases to all sites using streamlined process
 - ◆ Production Support – supports states in production use
 - ◆ Development – delivers quality software
- NBS is a mature and stable production system
 - ◆ Demonstrated in multiple states, multiple configurations
 - ◆ Has become easier to work with and support
 - ◆ Provides flexible, sophisticated surveillance support

SAFER • HEALTHIER • PEOPLE™



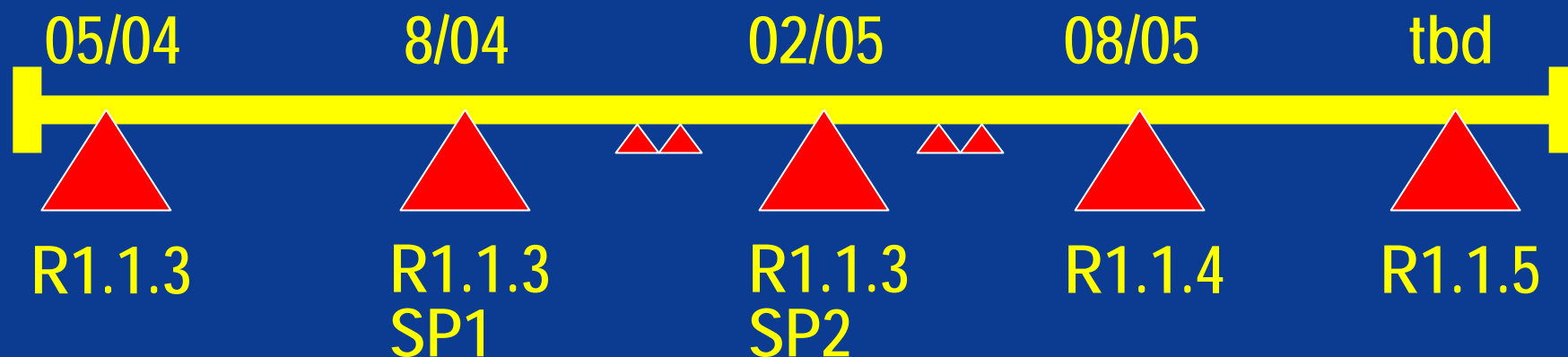
NBS Key Messages (cont.)

- A community of partners committed to NEDSS & NBS
 - ◆ NBS experience represents a model for how it can work
 - ◆ It really is a community - CDC, States, and Vendors actively working together

- “Milestones of Collaboration” among partners
 - ◆ Enhancement Request prioritization process
 - ◆ AVR extensions via collaborative development process
 - ◆ Support responsiveness has been called “fantastic”
 - ◆ Collaboration in Foodborne PAM development process



NBS Release Timeline



SAFER • HEALTHIER • PEOPLE™



NBS Deployment Status

States live on NBS R1.1.3 SP1

(*live as of May 2004)

- ◆ TX – All but Houston, all conditions*

States live on NBS R1.1.3 SP2

- ◆ NE – Statewide, all conditions*
- ◆ SC – Statewide, all conditions*
- ◆ TN – Statewide, all conditions*
- ◆ AL – Mobile only, all conditions
- ◆ VT – Statewide, all conditions
- ◆ NV – All but Clark County, all conditions
- ◆ VA – Statewide, all conditions
- ◆ ID – Statewide, all conditions
- ◆ OR – Statewide BMIRD, Linn County all conditions

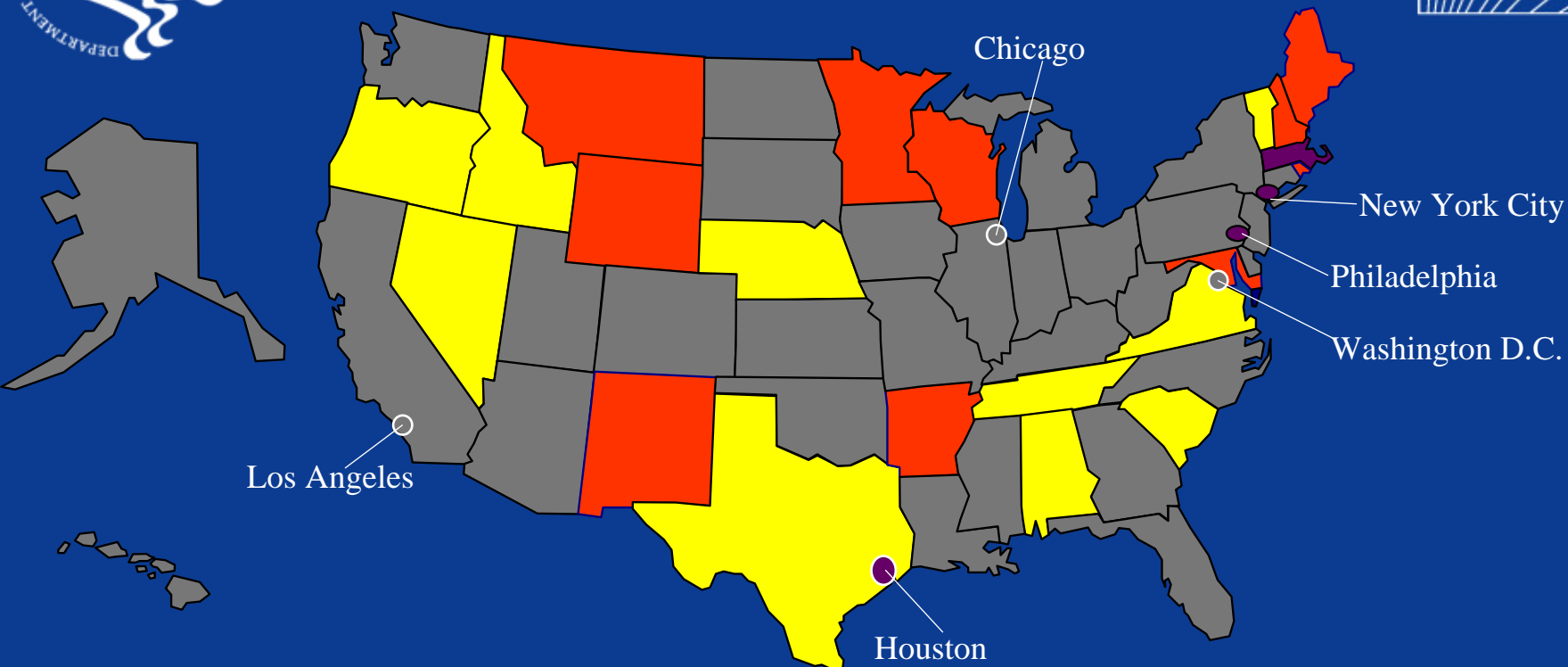
States in progress

- ◆ AR, NM, MD, ME, WI, MN, NH, MT, WY, RI

SAFER • HEALTHIER • PEOPLE™



NEDSS Site Status – 5/10/2005



NBS In Use – 10



NBS Deployment Planned or Underway - 10



NBS Under Review/consideration - 4



NEDSS – Compatible State/Jurisdiction Development - 33

NBS = NEDSS Base System
(CDC-developed)

State/local NEDSS sites = 57

SAFER • HEALTHIER • PEOPLE™



NBS Production Support

- A very dynamic environment
 - ◆ Variable number of tickets reported through the PHIN Helpdesk from States and/or Deployment team
 - ◆ Tickets assigned to NBS Development team as needed
- Every helpdesk ticket follows a controlled process
 - ◆ Response to ticket varies based on the need
 - ★ Request for Assistance provided
 - ★ Documentation Updated
 - ★ Enhancement Request
 - ★ Defect



NBS R1.1.4 Summary

Target Schedule

- NBS R1.1.4 Beta Test (Win2000) 06-21-05 to 07-19-05
- NBS R1.1.4 for Win2000 07-26-05
- NBS R1.1.4 for Win2003 08-19-05
- NBS R1.1.4 for Solaris Unix 09-09-05

- Defect Resolutions & Misc. Enhancements
- New Analysis & Reporting Datamarts
- SOE Upgrade : Windows 2003 & Unix
- Mayo ELR Support
- Foodborne & Diarrheal Disease PAM Phase 2



R1.1.4 – Analysis & Reporting

- Defined a process to collaborate directly with state partners to define and build new reports and datamarts
 - ◆ See PHIN Conference Poster Exhibit
- Sample Datamarts targeted for NBS R1.1.4
 - ◆ Lab Resulted Test (NE)
 - ◆ Hepatitis (NE)
 - ◆ Foodborne (TN)
 - ◆ BMIRD Data Mart (OR)
 - ◆ Severity Measures (VT)
 - ◆ Summary Data Reports (VA)



R1.1.4 – Standard Operating Environment (SOE) Upgrade



Current State

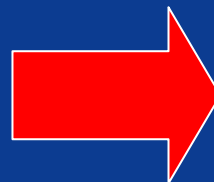
Desktop SOE

Win2000

Server SOE

- Web
- Application
- Database

Win2000



Transition Period

Desktop SOE

Win2000 or WinXP

Server SOE

- Web
- Application
- Database

Win2000, 2003, Unix



R1.1.4 – Mayo Electronic Lab Report (ELR) Support

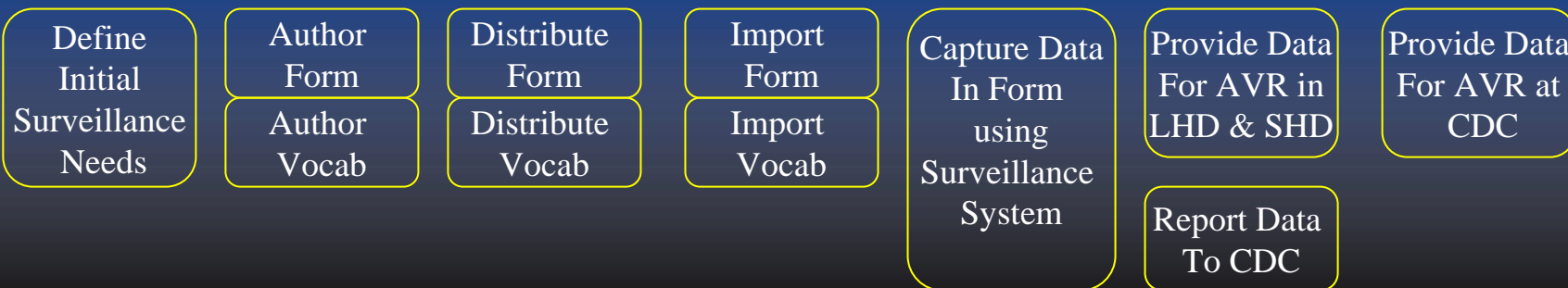


- Mayo ELR
 - ◆ Working directly with Mayo technical staff and CDC Messaging team to complete end-to-end testing of Mayo ELR with NBS.
 - ◆ Required minor enhancements to NBS
- Quest ELR
 - ◆ Changes made to NBS R1.1.4 will help prepare for Quest ELR support in a future NBS release
- LabCorp ELR
 - ◆ Continues to be actively supported in NBS R1.1.4



R1.1.4 – Custom Field Summary

- Provide additional surveillance capability without requiring a normal NBS software development release
- Provide 'Locally Defined Fields' (LDF) to meet state level extensibility needs
- Provide 'Collaboratively Defined Fields' (CDFs),
- Provide CDF based Custom SubForm capability





R1.1.4 – CDFs & Custom Subforms

- Groups of CDFs are defined in XML files
 - ◆ XML files are distributed and imported into NBS
 - ◆ Configurable attribute controls whether data captured are sent to CDC within NBS Case Notification messages
- Custom Subform extends the CDF concept to also allow author defined HTML for look-and-feel and validation rules
 - ◆ Content is a XHTML document that satisfies authoring rules



Release Timeline & Use Summary



R1.1.3 (May '04)

R1.1.4 (Aug '05)

Capabilities

- ◆ Extended CDFs (XML based)
- ◆ Point-in-Time Versioning
- ◆ National LDF Metadata Repository
- ◆ CDFs included in NND Message
- ◆ Custom Subform Infrastructure
- ◆ Page Rendering Performance

- ◆ Extended CDFs to support multiple selections in a single drop-down

Production Use

36 CDF XML Files

- ◆ Foodborne PAM Phase1
- ◆ VPD Conditions: Mumps, Tetanus
- ◆ Animal Rabies
- ◆ Lyme

37 Custom Subform XML Files

- ◆ Foodborne & Diarrheal Disease (FDD) PAM Phase2



New NBS Custom Field Functionality as Illustrated in the Foodborne and Diarrheal Disease PAM (FDD PAM)

Katherine A. Robinson, MPH
PHIN Conference, Atlanta GA Session 3F
May 10, 2005

SAFER • HEALTHIER • PEOPLE™



FDD PAM Development: Year in Review



- **First phase delivered with 1.1.3 in June 2004**
 - ◆ Scope defined as replacement for NETSS, PHLIS for foodborne pathogens and FoodNet, and limited one-page surveillance forms
 - ◆ Use of collaboratively-defined field functionality to expand the generic investigation form
- **Early feedback from end-users indicated improvements to work flow necessary**
- **October 2004: JAD sessions with representatives from five NBS states**



JAD Session Participants

- **Nebraska:** Tom Safranek
- **Texas:** Doug Hamaker and Matt Richardson
- **Virginia:** Lesliann Helmus and Julia Murphy
- **Minnesota:** Carlota Medus, Ellen Swanson, Deb Boyle, Stephanie Wedel, and Allison Kress
- **Oregon:** June Bancroft
- **CDC:** NCID Office of Surveillance, Foodborne and Diarrheal Diseases Branch, Parasitic Diseases Branch, and Emerging Infections Program
- **Goal:** *To define requirements around improvements to work flow and identify missing crucial fields within the pre-defined scope*



Recurring Themes of the Requirements Gathered



- Need to **group related questions**
 - ◆ Travel history or water exposure
 - ◆ “Question groups” need to span multiple FDD conditions
 - ◆ Became clear that there was no generic FDD investigation page
- Need to **allow interdependency** between variables and **multi-select** functionality
- Need to **utilize custom field functionality outside** the investigation page
 - ◆ Leverage existing NBS functionality in the lab report page



Design Solution: Use of Custom Subforms

■ Considerations:

- ◆ Technically, good timing
 - ★ Custom subform infrastructure with 1.1.3
 - ★ Required minimal improvements to existing functionality within subforms
- ◆ Could be done faster than standard custom development
- ◆ Could address work flow requirements

- **Solution:** *Question groups developed as subforms and are presented to states as one subform based on condition*



FDD PAM Conditions (n=37)

- Ambiasis (parasite)
- Amnesic shellfish poisoning (marine toxin)
- Anisakiasis
- Brucellosis
- Botulism (FDD, Infant, Other Unspecified, Wound, Other (Wound & Unspecified))
- Campylobacteriosis (bacteria)
- Cholera
- Ciguatera fish poisoning (marine toxin)
- Cryptosporidiosis
- Cyclosporiasis
- Diarrheal disease, not otherwise specified
- Diphylobothrium latum (parasite)
- Enterohem. E. coli 0157:H7 (bacteria)
- Enterohemorrhagic E. coli, shiga (not serogpd) (bacteria)
- Enterohemorrhagic E. coli, shiga + serogp non-0157 (bacteria)
- Foodborne Illness, not otherwise specified
- Giardiasis (parasite)

- Listeria
- Norovirus (virus)
- Paralytic shellfish poisoning (marine toxin)
- Rotovirus (virus)
- Salmonella
- Scombroid fish poisoning (marine toxin)
- Shigellosis (bacteria)
- Staphylococcal enterotoxin (bacteria)
- Toxoplasmosis (parasite)
- Trichinosis (Trichinellosis) (parasite larvae)
- Typhoid fever (Salmonella typhi) (bacteria)
- Vibrio cholerae, non-toxigenic
- Vibrio parahaemolyticus (bacteria)
- Vibrio spp., non-toxigenic, other or unspecified (bacteria)
- Vibrio vulnificus infection (bacteria)
- Yersiniosis (bacteria)



FDD PAM Investigation Question Groups



Risk/Exposure

- Child Care (7)
- Food Handler (3)
- Travel History (20)
- Drinking Water Exposure (7)
- Recreational Water Exposure (6)
- Animal Contact (6)
- Pregnancy (15)
- Seafood Exposure (12)
- Underlying Conditions (10)
- Related Cases (3)
- FoodNet (11)

Disease Specific

- Trichinellosis (27)
- Cyclosporiasis (27)
- Typhoid Fever (7)
- Cholera & Other Vibrios (28)
- Botulism (Foodborne) (8)
- Botulism (non-Foodborne) (2)
- EHEC (2)
- Toxoplasmosis (2)



FDD PAM Condition Code to Question Group Mapping

Question Groups	Risk/Exposure							Other			Disease Specific									
	Day Care	Food Handler	Travel History	Drinking Water Exposure	Recreational Water Exposure	Animal Contact	Pregnancy	Seafood Exposure	Underlying Conditions	Related Cases	FoodNet	Trichinellosis : Signs & Symptoms/ Suspect Food	Cyclosporiasis : Signs & Symptoms/ Clinical Data/ Epidemiologic Data	Typhoid Fever : Clinical Data	Cholera & Other Vibrios : Signs & Symptoms/ Clinical Data/ Epidemiological Data	Cholera & Other Vibrios : Cholera : V. Cholerae 01 or 0139 Data	Botulism : FDD Clinical Data	Botulism : Other Clinical Data	EHEC : Clinical Data	Toxoplasmosis : Clinical Data
Amebiasis (parasite)	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes										
Amnesic shellfish poisoning (marine toxin)			Yes	Yes	Yes			Yes	Yes	Yes										
Anisakiasis (parasite larvae)			Yes					Yes	Yes	Yes										
Brucellosis						Yes			Yes	Yes										
Botulism - Foodborne	Yes			Yes					Yes	Yes							Yes			
Botulism - Infant	Yes			Yes					Yes	Yes								Yes		
Botulism - Other Unspecified	Yes			Yes					Yes	Yes								Yes		
Botulism - Wound	Yes			Yes					Yes	Yes								Yes		
Botulism - Other (Wound & Unspecified)	Yes			Yes					Yes	Yes								Yes		
Campylobacteriosis (bacteria)	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes									
Cholera		Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes				Yes	Yes				
Ciguatera fish poisoning (marine toxin)			Yes	Yes				Yes	Yes	Yes										
Cryptosporidiosis	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes									



Home | Data Entry | Merge Patients | Investigations | Reports | System Admin | Help | Logout

View Investigation User: Super User **THE LOGO**

Patient ID: 17000 | Investigation ID: CAS10016002NV01 [Return to File: Summary](#)

[Manage Treatments](#) [Manage Vaccinations](#) [Manage Observations](#) [Create Notifications](#) [Transfer Ownership](#) [Edit](#) [Print](#)

Name: Linda TestLL DOB: 05/12/1953 Current Sex: Female

[Patient](#) [Salmonellosis](#)

[Investigation Summary](#) | [Reporting Source](#) | [Clinical](#) | [Epidemiologic](#) | [Administrative](#) | [Associated Observations](#) | [Treatments](#) | [Associated Vaccinations](#) | [Notifications](#) | [Custom Fields](#) | [Condition Specific Custom Fields](#)

Investigation Summary [Back to Top](#)

*** Jurisdiction:** Carson City
Program Area: General Communicable Disease
State Case ID: LindaTest
Investigation Start Date: 05/05/2005
Investigation Status: Open
☒ Share record with Guests for this Program Area and Jurisdiction

Investigator

Last Name:	First Name:
Provider ID:	
Email:	
Telephone:	Ext.:

Reporting Source [Back to Top](#)

Date of Report: 05/06/2005
Reporting Source: Hospital
Source Name: Carson Tahoe Hospital
Organization ID: ORG10003000NV01
City: Carson City
State: Nevada **Zip:** 89701
County:

Earliest Date Reported to

County: 05/05/2005	State: 05/06/2005
---------------------------	--------------------------

Reporter

Condition
Specific
Custom Fields

Investigation
Data



Salmonella
Custom Subform
Question Groups



Day Care

Attend a day care center? {CHOOSE ONE} ▼

Work at a day care center? {CHOOSE ONE} ▼

Live with a day care center attendee? {CHOOSE ONE} ▼

Food Handler

Did patient work as a food handler after onset of illness? {CHOOSE ONE} ▼

Travel History

Did patient travel prior to onset of illness? {CHOOSE ONE} ▼

Applicable incubation period for this illness is
([Incubation.PDF](#)) : {ALPHANUMERIC LENGTH = 30}

What was the purpose of the travel? {MULTI-SELECT} ▼

Drinking Water Exposure

What is the source of tap water at home? {CHOOSE ONE} ▼

What is the source of tap water at school/work? {CHOOSE ONE} ▼

Did the patient drink untreated water in the 7 days
prior to onset of illness?
(e.g., from a river while camping) {CHOOSE ONE} ▼

Recreational Water Exposure

Was there recreational water exposure in the 7 days
prior to illness? {CHOOSE ONE} ▼

What was the recreational water exposure type? {MULTI-SELECT} ▼

Name or location of water exposure: {ALPHANUMERIC LENGTH = 30}

Animal Contact

Did patient come in contact with an animal? {CHOOSE ONE} ▼

Underlying Conditions

Did patient have any of the following underlying conditions? {MULTI-SELECT} ▼

Related Cases

Does the patient know of any similarly ill persons? {CHOOSE ONE} ▼

Are there other cases related to this one? {CHOOSE ONE} ▼

FoodNet Case? ☐

Day Care

DYNAMIC QUESTIONS:
IF 'YES' TO ANY OF
THESE 3 QUESTIONS,
THEN SHOW QUESTIONS
BELOW.

Attend a day care center? {CHOOSE ONE} ▼

Work at a day care center? {CHOOSE ONE} ▼

Live with a day care center
attendee? {CHOOSE ONE} ▼

VALUES:
YES; NO;
UNKNOWN

VALUES:
CHILD CARE CENTER; IN-HOME
CAREGIVER; CHILD CARE PROVIDED BY
RELATIVES, FRIENDS, OR NEIGHBORS;
ADULT DAY SOCIAL CARE; ADULT DAY
HEALTH CARE; ALZHEIMER'S SPECIFIC
DAY CARE

What type of day care facility? {CHOOSE ONE} ▼

What is the name of the day care
facility? {ALPHANUMERIC LENGTH = 30}

Is food prepared at this facility? {CHOOSE ONE} ▼

Does this facility care for diapered
persons? {CHOOSE ONE} ▼

VALUES:
YES; NO;
UNKNOWN

Food Handler

DYNAMIC QUESTION:
IF 'YES', THEN SHOW
NEXT 2 QUESTIONS.

Did patient work as a food handler after
onset of illness? {CHOOSE ONE} ▼

VALUES:
YES; NO;
UNKNOWN

What was last date worked as a food handler
after onset of illness? {DATE VALIDATION}
mm/dd/yyyy

Where was patient a food handler? {ALPHANUMERIC LENGTH = 30}



FDD PAM Improvements to Lab Report Page



- Improved to allow up to three isolates per specimen
- Improved vocabulary for resulted test and organism to accommodate FDD conditions
- Added new question groups including Isolate Tracking, PulseNet, NARMS, and EIP
 - ◆ Appearance of question groups controlled by user



Lab Reports				Back to Top
				Add
Date Received	Date Collected	Ordered Test	Observation ID	
03/24/2005	03/22/2005	Culture, Stool	OBS10001069GA01	
		MICROORGANISM IDENTIFIED	Salmonella enteritidis (organism)	
		18855-7		
		MICROORGANISM IDENTIFIED	Shigella dysenteriae (organism)	
		MICROORGANISM IDENTIFIED	Salmonella group A (organism)	

Ordered Test
Resulted Test/
Organism



NBS & PAM Platform Demos



- NBS R1.1.4 Preview and PAM Platform demonstrations at the PHIN Booth
 - ◆ Wednesday: 8:00am – 10:00am
 - ◆ Thursday: 8:00am – 10:00am

SAFER • HEALTHIER • PEOPLE™